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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

RICHARD G. HYATT Jr.

Serial No.: 08/720,070

Examiner: BARRETT, SUZANNE

Filed: 27 September 1996

Art Unit: 3653

For: ELECTROMECHANICAL CYLINDER PLUG

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with 37 C.F.R. §1.97(f), and in accordance with 37 C.F.R. §1.56, and §§1.97 and 1.98 as amended, Applicant cites and describes the following art references. In accordance with the new regulation set forth in the *Official Gazette Notices: 05 August 2003*, a copy of each of the twenty-three (23) U.S. patent references cited below is attached, and copies of all of the forty-five (45) foreign references were previously filed in the Office, as evidenced by the photocopy of the accompanying postcard receipt, on the 22nd of June 2004.

Folio: P53821C
Date: 24 September 2004
I.D.: REB/kf

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GROUP 3600

U.S. Patent References

1. U.S. Patent No. 6,684,671 to Beylotte *et al.*, entitled *VENDING MACHINE LOCK*, issued on February 3, 2004;
2. U.S. Patent No. 6,615,625 to Davis, entitled *ELECTRONIC LOCKING SYSTEM*, issued on September 9, 2003;
3. U.S. Patent No. 5,722,274 to Nakauchi *et al.*, entitled *LOCK CYLINDER*, issued on March 3, 1998;
4. U.S. Patent No. 5,605,066 to Hurskainen, entitled *ELECTROMECHANICAL LOCK ARRANGEMENT*, issued on February 25, 1997;
5. U.S. Patent No. 5,477,213 to Atarashi, entitled *DATA INPUT DEVICE FOR IC-KEY LOCK SYSTEM*, issued on December 19, 1995 (corresponding to EP 0597373);
6. U.S. Patent No. 5,469,727 to Spahn *et al.*, entitled *ELECTRONIC LOCK CYLINDER*, issued on 28 November 1995 (corresponding to EP0559158);
7. U.S. Patent No. 5,206,637 to Warren, entitled *REMOVABLE FILE PROGRAMMING UNIT*, issued on April 27, 1993 (corresponding to EP 0497040);
8. U.S. Patent No. 4,979,647 to Hassell, entitled *METHOD AND APPARATUS FOR COOLING AND DISPENSING BEVERAGE*, issued on December 25, 1990;
9. U.S. Patent No. 4,864,292 to Nieuwkoop, entitled *IDENTIFICATION SYSTEM*, issued on 5 September 1989;
10. U.S. Patent No. 4,856,310 to Parienti, entitled *ELECTRONIC LOCK*, issued on August 15, 1989 (corresponding to EP0290330);
11. U.S. Patent No. 4,854,619 to Nakauchi, entitled *ELECTRIC KEY*, issued on 8 August 1989;
12. U.S. Patent No. 4,798,068 to Nakauchi, entitled *ELECTRICALLY CONTROLLED TYPE CYLINDER FOR LOCKS*, issued on January 17, 1989;
13. U.S. Patent No. 4,712,398 to Clarkson *et al.*, entitled *ELECTRONIC LOCKING SYSTEM AND KEY THEREFOR*, issued on 15 December 1987;
14. U.S. Patent No. 4,686,358 to Seckinger *et al.*, entitled *PROGRAMMABLE*

ELECTRONIC-MECHANICAL REVERSING FLAT KEY INTERACTIVELY COMMUNICATABLE WITH DATA PROCESSING MEANS, issued on 11 August 1987 (corresponding to DE 3507871, GB 2155988);

15. U.S. Patent No. 4,602,253 to Kreft, entitled *APPARATUS FOR MUTUAL INFORMATION TRANSMISSION IN A LOCK AND KEY SYSTEM*, issued on 22 July 1986;
16. U.S. Patent No. 4,562,343 to Wiik *et al.*, entitled *RECODABLE ELECTRONIC LOCK*, issued on December 31, 1985 (corresponding to DE 3331357);
17. U.S. Patent No. 4,509,093 to Stellberger, entitled *ELECTRONIC LOCKING DEVICE HAVING KEY AND LOCK PARTS INTERACTING VIA ELECTRICAL PULSES*, issued on April 2, 1985 (corresponding to DE 3225754);
18. U.S. Patent No. 4,458,512 to Gelhard, entitled *CYLINDER LOCK WITH KEY FOR MECHANICAL AND/OR ELECTROMECHANICAL LOCKING* issued on July 10, 1984 (corresponding to EP 0059874);
19. U.S. Patent No. 4,414,831 to Perkut, entitled *KEY-OPERATED LOCK*, issued on November 15, 1983 (corresponding to WO 81/00586);
20. U.S. Patent No. 4,073,527 to Schlage, entitled *ELECTRICALLY CONTROLLED DOOR LOCK*, issued on 14 February 1978
21. U.S. Patent No. 4,053,939 to Nakauchi *et al.*, entitled *ELECTRIC LOCK SYSTEM*, issued on October 1, 1977;
22. U.S. Patent No. 3,979,647 to Perron *et al.*, entitled *INDUCTIVELY COUPLED LOCK*, issued on 7 September 1976.
23. U.S. Patent No. 3,241,344 to Peters, entitled *LOCK*, issued on 22 March 1966;

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24. Japanese Patent Publication No. 09-132977 to Maeda *et al.*, entitled *ELECTRON LOCK*, published on 20 May 1997;

25. Japanese Patent Publication No. 08-218690 to Maeda *et al.*, entitled *LOCK-CYLINDER AND ELECTRONIC KEY*, published on 27 August 1996;
26. Japanese Patent Publication No. 07-317385 to Maeda, *et al.*, entitled *CYLINDER LOCK*, published on 5 December 1995;
27. Japanese Patent Publication No. 06-73931 to Nakauchi, entitled *CYLINDER LOCK*, published on 15 March 1994;
28. Japanese Patent Publication No. 06-73930 to Nakauchi, entitled *CYLINDER LOCK*, published on 15 March 1994;
29. Japanese Patent Publication No. 06-73929 to Nakauchi, entitled *CYLINDER LOCK*, published on 15 March 1994;
30. Japanese Patent Publication No. 02-200979 to Nakauchi, entitled *ELECTRONIC LOCK*, published on 9 August 1990;
31. Japanese Patent Publication No. 01-219270 to Nakauchi, entitled *ELECTRONIC LOCK*, published on 1 September 1989;
32. Japanese Patent Publication No. 01-219269 to Nakauchi, entitled *ELECTRONIC LOCK*, published on 1 September 1989;
33. Japanese Patent Publication No. 63-206581 to Nakauchi, entitled *ELECTRONIC LOCK*, published on 25 August 1988;
34. Japanese Patent Publication No. 63-138080 to Nakauchi, entitled *CYLINDER LOCK*, published on 10 June 1988;
35. Japanese Patent Publication No. 63-93977 to Nakauchi, entitled *CYLINDER LOCK*, published on 25 April 1988;
36. Japanese Patent Publication No. 63-32072 to Nakauchi, entitled *ELECTRONIC LOCK DRIVING DEVICE*, published on 10 February 1988;

European Patent References

37. European Patent Publication No. 0 597 373 A1 to Atarashi, entitled *DATA INPUT DEVICE FOR IC-KEY LOCK SYSTEM*, published on 18 May 1994 (corresponding

- to US 5477213);
38. European Patent Publication No. 0 559 158 A1 to Spahn *et al.*, published on 8 September 1993 (corresponding to US 5469727);
 39. European Patent Publication No. 0 497 040 A1 to Warren, entitled *REMOVABLE FILE PROGRAMMING UNIT*, published on 5 August 1992 (corresponding to US 5206637);
 40. European Patent Publication No. 0 324 096 to Baden *et al.*, entitled *LOCKING CYLINDER, ESPECIALLY A CYLINDER FOR A MORTISE LOCK*, published on 19 July 1989;
 41. European Patent Publication No. 0 290 330 A1 to Parienti, entitled *ELECTRONIC LOCK*, published on November 9, 1988 (corresponding to US4856310);
 42. European Patent Publication No. 0243 586 to Koselt, entitled *ELECTRO-MECHANICAL LOCKING DEVICE WITH AN INDIVIDUAL KEY*, published on 4 November 1987 (corresponding to DE3602989);
 43. European Patent Publication No. 0 115 747 to Crosetto, entitled *ELECTRONIC ANTITHEFT DEVICE COMPRISING AN ELECTRONIC KEY*, published on 15 August 1984;
 44. European Patent Publication No. 0094592 to Klaus, entitled *LOCKING DEVICE*, published on 23 November 1983 (corresponding to DE 3128112);
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46. German Patent Publication No. 4314854 A1 to Themel, entitled *STEERING-COLUMN LOCK*, published on 10 November 1994;
47. German Patent Publication No. 4036575 to Hausmann, published on 20 June 1991 (corresponding to GB 2239673);

48. German Patent Publication No. 3602989 A1 to Koselt published on 19 November 1987 (corresponding to EP 0243586);
49. German Patent Publication No. 3515888 to Bartels *et al.*, published on 6 November 1986 (corresponding to GB 2174452);
50. German Patent Publication No. 3507871 to Seckinger, entitled *PROGRAMMABLE ELECTRONIC-MECHANICAL REVERSING FLAT KEY INTERACTIVELY COMMUNICATABLE WITH DATA PROCESSING MEANS*, published on 21 November 1985 (corresponding to GB 2155988, US 1686358);
51. German Patent Publication No. 3 244 566 to Kraft, published on 14 June 1984;
52. German Patent Publication No. 3331357 C3 to Wiik, entitled *RECODABLE ELECTRONIC LOCK*, published on 8 March 1984 (corresponding to US 4562343);
53. German Patent Publication No. 3313098 C1 to Kurth, entitled *ELECTRONIC LOCK SYSTEM*, published on 11 October 1984;
54. German Patent Publication No. 3218112 A1 to Klaus, entitled *LOCKING DEVICE*, published on 24 November 1983 (corresponding to EP 0094592);
55. German Patent Publication No. 3031405 A1 to Kreppel, published on 1 April 1982;
56. German Patent Publication No. 3225754 A1 to Stellberger, entitled *ELECTRONIC LOCKING DEVICE HAVING KEY AND LOCK PARTS INTERACTING VIA ELECTRICAL PULSES*, published on 12 January 1984 (corresponding to US 4509093);
57. German Patent Publication No. 2557637 to gleich Anmelder, published on 7 July 1977;
58. German Patent Publication No. 25 46 542 to Egen, entitled *LOCKS*, published on 21 April 1977 (corresponding to GB 1514866).
59. German Patent Publication No. 5 59 158 to Blessing, published on 16 September 1932;

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60. U.K. Patent Publication No. 2 239 673 to Hausmann, entitled *ELECTRONIC LOCK WITH INDUCTIVE TRANSMISSION*, published on July 10, 1991 (corresponding to DE 4036575);
61. U.K. Patent Publication No. 2 174 452 to Bartels *et al.*, entitled *A LOCKING DEVICE OPERATING BY MECHANICAL AND ELECTRICAL MEANS*, published on 5 November 1986 (corresponding to DE3515888);
62. U.K. Patent Publication No. 2 155 988 to Seckinger *et al.*, entitled *MECHANICAL/ELECTRONIC KEY*, published on 2 October 1985 (corresponding to DE 3507871, US 1686358);
63. U.K. Patent Publication No. 2 124808 to Donald Atkinson Bell, entitled *SECURITY SYSTEM*, published on 22 February 1984;
64. U.K. Patent Publication No. 1 531 951 to Perron *et al.*, entitled *KEYHOLE-LESS ELECTRONIC LOCK*, published on 15 November 1978;

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66. PCT publication NO. WO 96/18014 by Nakauchi, entitled *CYLINDER FOR LOCK*, published on 13 June 1996 (corresponding to EP0748909);
67. PCT Publication No. 87 03640 A to Llort, entitled *LOCK WITH LOADING BY ELECTRIC CONTROL BY MEANS OF AN ELECTROMAGNET*, published on 18 June 1987;
68. PCT Publication No. WO 81 00586 to Perkut, entitled *LOCK OPERATED BY MAGNETIC MEANS*, published on 5 March 1981 (corresponding to US 4414831);

* * *

DISCUSSION

Nakauchi JP '929 corresponds to Nakauchi US '274. Nakauchi JP '929 relates to a cylinder lock which is designed to eliminate the need for the installation of a power supply on the cylinder lock side. A power supply 44 prepared in an electronic key 16 is used under the state, in which the electronic lock 16 is inserted into a keyhole, a stator 30 is excited by electromagnetic induction generated between the electronic key 16 and the power supply 44, and a rotor 32 is rotated on the basis of magnetic force working between the stator 30, which is excited and to which an N pole and an S pole are formed, and the rotor 32 being magnetized by a permanent magnet and having an N pole and an S pole. A pawl 26 is moved from the position of locking, where revolution to an external cylinder 10 is prevented engaged with the recessed section 28 of the external cylinder 10, to the position of the release of locking, where the state of the prevention of the rotation of an internal cylinder 12 is released disengaged from the recessed section 28 of the external cylinder 10, through a long-sized plate 22 by the turn of the rotor 32. (English language Abstract of Nakauchi JP '929) Nakauchi JP '929 is particularly relevant for its teaching of a stator 30 excited by electromagnetic induction generated between an electronic key 16 and a power supply 44, and a rotor 30 which rotates on the basis of magnetic force created by stator 30 so that pawls 26 formed at opposite ends of rotor 32 are withdrawn from corresponding recess section 28 of the external cylinder 10.

Nakauchi U.S. '274 discloses a pair of inner cylinders 14, 16 that are positioned within outer cylinder 10. A connecting unit 44 with an electromagnetic rotary actuator 46 that operates in response to an electric signal, together with a connecting mechanism 48 driven by rotary actuator 46, includes a connecting pin 54 that can freely advance or retreat. The connecting pin control mechanism advances the connecting pin 54 when a proper key is inserted, holds the advance state, and retreats the connecting pin 54 when the key is extracted. Force generated by the electrical actuator within the first inner cylinder generates a driving force to actuator the connecting pin.

Nakauchi JP '931 shows an electronic lock 10 constructed with a first internal cylinder 26 and second internal cylinder 28 inside and external cylinder 24, with an actuator 40 constructed by laminating a piezoelectric element on the actuator to function as a clutch, disposed within the second internal cylinder 28.

Nakauchi JP '930 shows an internal cylinder 26 receiving electronic key 12, and shows an electrical circuit 52 driving and actuator 32 in order to position pin 42 through an aperture 40 in housing 24 and thereby engage a recess 44 in internal cylinder 26.

Nakauchi JP '072 shows a locking mechanism driven by rectified house voltage, in a wired switching circuit.

Nakauchi JP '270 mentions an electronic lock provided with a bolt 1 and a holding electromagnet 4, permanent magnet 5 and a hook 8 rotatable to maintain a locking state of bolt 1.

Nakauchi JP '269 also uses a dead bolt 1 and a magnetic holding type electromagnet 4, permanent magnet 5 and hook 8 to lock dead bolt 1.

Nakauchi US '619 and JP '581 describes an electronic key having a self-holding electromagnet that attracts "movable means holding a locking block in its non-conductive state and for releasing the removable means in its conductive state to the bias of a spring."

Maeda JP '690 uses two rotary bodies 30, 32 connected through a connecting pin 44, with a trigger 46 rotated by an actuator 38, to engage a hole 32B in response to insertion of a key 14.

Nakauchi JP '979 describes an electronic lock that uses "a secret certificate number" stored in memory 5, operated in conjunction with a rotary controlled knob 2.

Maeda, *et al.*, JP '385 uses a coupling pin 23 projected to the outside of an inner cylinder 16, to move into an opening 34 of a clutch disk 31 installed in a bolt driving shaft 30, whereby the electronic key, inner cylinder 16 and bolt driving shaft 30 are integrally rotated motor 27 and coupling pin 23 presented in an isometric view Figure 2, may be seen side-by-side in the plan view of Figure 5(A).

Maeda *et al.* JP '977 contemplates power transmission performed simultaneously with data transmission to the lock's main body 30, with the key effectively operating the lock only in a designated time zone.

Nakauchi JP '080 appears to contemplate an external solenoid operated latch mounted outside of the cylinder plug, to either control rotation of the cylinder plug relative to the shell or to control rotation of the cylinder plug relative to the shell and simultaneously serve as a key retaining mechanism.

Nakauchi JP '977 teaches a cylinder lock with electromagnetic actuator 5, electronic circuit 6 and power source 6 mounted externally to the internal cylinder plug 1, to control the position of pin 4, and thereby regulate rotation of cylinder plug 1 within shell 3.

Nakauchi JP'072 discloses an electronic lock using a full wave rectified, hard wired electrical current.

Nakauchi U.S. '068 shows an electro-magnetic holding device 18 made of a permanent magnet "installed in a space 2b inside an outer barrel 2." (Col. 3, lines 46, 47). When "hole 2c and the engaging hole 3a are in perfect alignment, the electronic key 4 can be freely inserted or withdrawn from the keyhole 5". (Col. 4, lines 1-3).

Nakauchi U.S. '619 provides an electromagnet 9 that is energized when a magnetic card is

accepted by a card reader, to move a "locking block 11" "upwardly along the stopping blocks 13, so that the locking block 11 is disengaged from the rear planar face of the latch head." (Col..3, lines 51-55)

Nakauchi U.S. '939 is an earlier reference that endeavors to provide an electric lock device using a movable core element 5 to block lateral movement of a latch 3, with a minimal number of electrical leads connecting the electro-mechanical lock and a control device. Nakauchi U.S. '939 minimizes the number of lead required for connection between a control device and electro-mechanical lock, with self-sustaining solenoid constructed with a coil and a core having two self-sustaining positions locking and unlocking the latch.

Peters US '344 discloses a cylinder lock operated with a key 22 and blocking member 30 controlled by the ignition cylinder lock 50 in an automobile.

Parienti EP '330 appears to rely upon the movement of the core 24 of an electromagnet 23 which is disposed adjacent to the electronics 20, to control operation of the electronic lock.

Llort WO '640 contemplates two rotating, coaxially mounted parts 41, 52 with an electromagnet comprising a magnet 45 and coil 46 mounted to turn coaxially to a part to be rotatingly driven from a first to a second angular position when the coil responds to an electric pulse. This arrangement is readily offset in the embodiment of Figure 9, from a door knob and as illustrated in Figure 15, from the bolt of a lock.

Korselt DE '989 and EP '586 discusses an electromechanical locking device containing a variable coding device, and asserts that "all the electronic and electromechanical hear of the system is situated in the locking cylinder.

Bartels DE '888 and GB '452 discusses an automobile door lock using a mechanical and

electronic system with a rotatable cylinder and an induction element connected in an electrically conducting matter with an electronic device on the vehicle for the transmission of an electromagnetic field.

Kraft DE '566 discusses an electronic lock and key system provided with lock and key-side antenna coils, with a key-side coil damped and undamped for short times in order to establish a synchronisation switch with a changed signal variation occurring at both coils at times determined by a coincidence of counter events, with a transmission of signals provided from the lock to the key.

Blessing DE '158 appears to provide electromechanical cylinder with a simple solenoid.

Kreft DE '637 teaches various configurations for inductively operated actuator with portable sources of electrical power.

Kreppel DE '405 suggests use of a key number in comparison with a latching code to control operation using key socket 19.

Egen DE '542 and corresponding to GB 1514866 describes a magnetic lock using two Hall elements 4, 5 orthogonally aligned within the key channel of the lock.

Hausmann GB '673 discloses a coil 21 mounted within the key that allows inductive transmission of an electric signal between the key and the cylinder of a lock for electronic identification of the key.

Bartels *et al.* GB '452 provides a bitted key fitting the pin tumblers of a cylinder lock, while bearing an induction element 28 inductively coupled to a lock induction element 14, with a locking device 21 located externally to the lock's cylinder plug.

Seckinger *et al.* GB '988 describes a key with depressions 3 arranged to receive radially displaceable tumbler pins located in a lock rotor and a grip on the proximal head of the key provided with at least one recess for receiving an electronic circuit, with at least one narrow side of the shank for the key provided with a contact bank connected to the electronic circuit housed in the recess.

Bell GB '808 discusses the concept of passing "questions" between the key and an input terminal in an encryption scheme for electronic locks.

Perron *et al.* GB '951 contemplates the concept of inductively transmitting signals between a key and a lock inductor, making a comparison of a sequence of binary signals and activating a motor to drive a lock lug between the locked and unlocked position.

In accordance with the duty of disclosure under 37 C.F.R. § 1.66 and §§ 1.97-1.99, the undersigned attorney hereby certifies that no item of information cited herein was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained herein was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

The citation of the foregoing references is not intended to constitute an assertion that other or more relevant art does not exist. Accordingly, the Examiner is requested to make a wide-ranging and thorough search of the relevant art.

A fee of \$180.00 incurred by filing of the foregoing information disclosure statement was timely paid on the 22nd of June 2004. Should the check have become lost, or found to have been deficient in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert E. Bushnell", is written over a horizontal line.

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Applicant: RICHARD G. HYATT JR.

S.N.: 08/720,070

Filed: 27 September 1996

For: *ELECTROMECHANICAL CYLINDER PLUG*.

Document(s) filed:

1. Information Disclosure Statement & PCT-1449 (total 18 pages)
2. Copies of forty-five (45) foreign patents: 5 UK, 9 EP, 13 Japanese, 1 French, 14 German, 3 PCT patents.
3. Check #45739 for \$180.00 & Fee Transmittal



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